

Remarks

Claims 1-4, 6-8 and 11-16 are pending herein. By this Amendment, claim 1 has been amended.

Specifically, claim 1 has been corrected to change the term "water-miscible" to --water-immiscible--. Support for this correction can be found in the specification at, e.g., page 3, line 10.

In the Office Action, claims 1-4, 6 and 11-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 3,957,672 to Zisman et al. ("Zisman"); and claims 1-3, 7, 8 and 11-16 are rejected over Zisman in view of U.S. Patent 5,514,301 to Bil et al. ("Bil").

In view of the amendments and remarks herein, Applicant respectfully requests reconsideration and withdrawal of the rejections set forth in the Office Action.

I. Rejection of Claims 1-4, 6 and 11-15

Claims 1-4, 6 and 11-15 are rejected under §103(a) as being unpatentable over Zisman.

Zisman is cited, *inter alia*, for teaching a surface-active composition for displacing aqueous or organic liquid films from solid surfaces, wherein the surface-active composition contains a fluorinated polyether which provides surface activity to the composition. The reference is further cited for teaching that the surface-active composition may additionally contain fluoroalcohols and perfluoroalkane solvents and that the fluoroalcohols have the formula $F(CF_3)_m(CH_2)_nCH_2OH$, with "m" ranging from 1-10 and "n" ranging from 1 to 15. Zisman is further cited for teaching that the fluoroalcohols are present in an amount of up to 1%; the perfluoroalkane solvents may include perfluorohexane and may be present in an amount of up to 99% by volume; the amount of fluorinated polyether (surface active agent) is from 0.5 to 1% by weight; and the solvent composition is applied to a surface to displace liquid films.

In the Amendment filed on June 23, 2003, Applicant argued that Zisman does not teach or suggest what amount of a fluoroalcohol would be useful in the displacement or removal of water. Thus, although Zisman teaches that up to 1% of a fluoroalcohol can be used in the composition therein to displace organic liquid from solid surfaces, the reference does not teach or suggest that such amount of a fluoroalcohol can be used to displace water from solid surfaces.

In response to Applicant's aforementioned arguments, the Examiner states in the Office Action:

Applicants argue that the amount of fluorinated alcohol present in the instant invention (at least 2%) is not obvious over the 1% fluorinated alcohol disclosed by Zisman et al. The Examiner disagrees. In concluding that the 1% fluorinated alcohol of Zisman et al. renders obvious Applicants' claimed 2% fluorinated alcohol, the Examiner considered Applicant's own examples found at page 11 of the specification. Fluorinated alcohol present in an amount of 2% did not perform significantly better than 1% fluorinated alcohol. The amounts claimed are so close to that disclosed in Zisman et al. that one of ordinary skill in the art would have expected that the two compositions would provide similar performance in water removal. Without further showings of the unexpected results in using 2% fluorinated alcohol, the claims cannot be deemed patentably distinguishable over Zisman et al.

While Applicants' Examples may show that the use of 2% of fluorinated alcohol does not remove significantly more water from a solid surface than does the use of 1% of fluorinated alcohol, Zisman does not teach this. When Zisman discloses the use of a fluoroalcohol in an amount up to 1% by weight, it is in the context of displacing *organic* liquid films from solid surfaces, not in the context of displacing water from solid surfaces. The results obtained in Applicants' Examples are not relevant to whether the instant claims would have been obvious over Zisman. Rather, it is Zisman's teachings which are relevant. As stated by the Federal Circuit and in the MPEP:

[a]ny judgment on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper. *In re McLaughlin*, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971).

To reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art. MPEP §2142

Thus, Zisman's teachings, not Applicants' Examples, must establish the obviousness of the claimed invention.

As pointed out above, Zisman discloses the use of a fluoroalcohol in an amount up to 1% by weight to remove organic films, not water, from solid surfaces. For example, at column 2, lines 53-55, Zisman teaches that the solute in the composition therein can be a fluoroalcohol. The reference then states the following:

The amount of the solute in the compositions is small and may be varied with selection as to the amount being made on the basis of the liquid displacing activity of the particular solutes. In general, amounts of the solute which are in the range of from about 0.02 to 1 percent by weight of the

compositions will be found effective for surface-chemical displacement of *organic liquid* films from solid surfaces by the method of the invention. [emphasis added] (col. 2, lines 56-64)

Likewise, the composition disclosed in Example 3 in Zisman (see column 5), which contains 99.1% by weight of OPFP-3 and 0.9% by weight of perfluorooctanol-1, is taught to be useful for displacing liquid organic film from solid surfaces (col. 4, lines 56-57).

The fact that a fluoroalcohol in a particular amount can remove an organic film from a solid surface does not mean that the same fluoroalcohol in the same amount can remove water from a solid surface, and vice versa.

Applicant submits herewith a Declaration Under 37 CFR 1.132 ("the '132 Declaration" or "the Declaration"), setting forth two experiments, designated as Examples 20 and 21, which compared the ability of a specific amount of a polyfluorinated alcohol to remove water with the ability of the same amount of the same polyfluorinated alcohol to remove an organic liquid. These experiments were also discussed in the Amendment filed on June 23, 2003.

In Example 20 set forth in the '132 Declaration, a dewetting solution was provided which contained a blend of 97.4% by weight of HFC (specifically: 80% by weight HFC 365 mfc/20% by weight HFC 43 10 mee)¹, 0.6% by weight of surface active agent SA2², and 2% tridecafluorooctanol (TDFO). Eighty (80) milliliters of the dewetting solution was introduced into a 100 ml beaker at ambient temperature. A 4x2 cm stainless steel plate, wetted beforehand by immersion in water, was then immersed in the dewetting solution for one minute. After withdrawal of the plate from the solution, the plate was observed to be practically dry.

1 "HFC" represents a fluorinated hydrocarbon; "HFC 365 mfc" represents 1,1,1,3,3-pentafluorobutane; and "HFC 43-10 mee" represents 1,1,1,2,3,4,4,5,5,5-decafluoropentane.

2 The process for making the surface active agent "SA2" is set forth on page 9, lines 1-6, of the instant specification.

In Example 21 set forth in the Declaration, the procedure followed in Example 20 was repeated except that, instead of wetting a 4x2 cm stainless steel plate with water, two (2) grams of Wynn's draw oil (available from Wynn's) was spread onto the plate. The oil-covered plate was then immersed in the dewetting solution for one minute. After the plate was withdrawn from the solution, it was observed to still be covered with the oil.

Thus, Examples 20 and 21 show that the ability of a specific amount of a specific polyfluorinated alcohol to remove water from a solid surface does not mean that the same amount of the same polyfluorinated alcohol can remove oil from the same type of solid surface. In other words, the fact that a particular amount of a particular polyfluorinated alcohol can effectively remove water from a solid surface does not mean it can remove an organic liquid from the solid surface and vice-versa.

Because Zisman does not teach or suggest what amount of a fluoroalcohol would be useful in the displacement or removal of water, Applicant submits that one skilled in the art would not have been motivated by Zisman to use a fluoroalcohol in the amount of 2% by weight (an amount of fluoroalcohol not even mentioned in Zisman) to remove water from a solid surface.

Thus, for at least the foregoing reasons, Applicant respectfully submit that Zisman would not have rendered instant claims 1-4, 6 and 11-15 obvious.

II. Rejection of Claims 1-3, 7, 8 and 11-16

Claims 1-3, 7, 8 and 11-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Zisman in view of Bil.

Bil does not teach or suggest the use of the polyfluorinated alcohol recited in Applicant's claims. Thus, Bil does not overcome the failure of Zisman to teach what amount of a fluoroalcohol would be effective in removing water from a solid surface.

Therefore, for at least the foregoing reason, Applicant submits that claims 1-3, 7, 8 and 11-16 would not have been obvious over Zisman in view of Bil.

III. Conclusion

In view of the foregoing remarks and the accompanying '132 Declaration, Applicant respectfully requests that the rejections of claims 1-4, 6-8 and 11-16 be withdrawn and that these claims be allowed.

Respectfully submitted,



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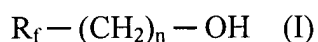
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LISTING OF CLAIMS

Claim 1 (Currently Amended): A water-removing dewetting composition, consisting essentially of a solution of between 0.01 and 0.5% by weight of at least one surface-active agent in a mixture of at least one fluorinated solvent and from 2% to 30% by weight of at least one ~~water-miscible~~ water-immiscible polyfluorinated alcohol of formula:



in which n is equal to 1 or 2 and R_f represents a linear or branched perfluoroalkyl radical containing from 4 to 8 carbon atoms,

wherein said composition does not exhibit a flash point under standard determination conditions (ASTM standard D 3828) and wherein the fluorinated solvent is a saturated or unsaturated fluorinated hydrocarbon containing from 3 to 6 carbon atoms.

Claim 2 (Previously Amended): The composition according to Claim 1, wherein the composition contains at least one alcohol of formula (I) in which n is equal to 2.

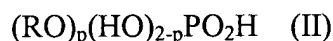
Claim 3 (Previously Amended): The composition according to Claim 1, wherein the alcohol of formula (I) is tridecafluorooctanol ($C_6F_{13}CH_2CH_2OH$).

Claim 4 (Previously Amended): The composition according to Claim 1, wherein the fluorinated solvent has a normal boiling point of between 20 and 100°C.

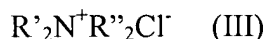
Claim 5 (Cancelled)

Claim 6 (Previously Amended): The composition according to Claim 4, wherein the fluorinated hydrocarbon is selected from 1,1,1,3,3-pentafluorobutane, 1,1,1,2,2,4,4-heptafluorobutane, 1,1,1,2,3,4,4,5,5,5-decafluoropentane, 1,1,1,2,2,3,3,4,4-nonafluorohexane, 1H-perfluorohexane, n-perfluorohexane, (perfluorobutyl) ethylene and perfluoro (methylmorpholine).

Claim 7 (Previously Amended): The composition according to Claim 1, wherein the surface-active agent is a cationic surface-active agent obtained by reaction of a mono- or dialkylphosphoric acid of formula:



in which p is a number ranging from 1 to 2 and R denotes a linear or branched alkyl radical containing from 1 to 18 carbon atoms, with a quaternary ammonium chloride of formula:



in which R' and R'', which are identical or different, each represent a hydrogen atom or an alkyl or hydroxyalkyl radical containing 1 to 4 carbon atoms, and a fluorinated amine of formula:



in which R_f represents a linear perfluoroalkyl radical containing from 2 to 20 carbon atoms, X represents a divalent bridge and the symbols R^1 and R^2 , which are identical or different, each represent a hydrogen atom or an alkyl or hydroxyalkyl radical containing 1 to 4 carbon atoms.

Claim 8 (Previously Amended): The composition according to Claim 7, wherein R is butyl, hexyl, 2-ethylhexyl, octyl or tridecyl radical, R' is a dodecyl or octadecyl radical, R'' is a methyl radical, X is a $-CH_2CH_2SO_2NHCH_2CH_2-$ or $-C_2H_4CONHCH_2CH_2-$ bridge and R^1 and R^2 are methyl radicals.

Claims 9-10 (Cancelled)

Claim 11 (Previously Amended): The composition according to Claim 1, wherein said composition is in the form of a concentrate containing up to 30% by weight of surface-active agent(s).

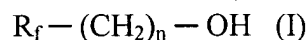
Claim 12 (Previously Amended): The method for dewetting of solid surfaces comprising treating a solid surface with the composition of claim 1.

Claim 13 (Previously Amended): The composition according to Claim 4, wherein the boiling point of the fluorinated solvent is between 30 and 75°C.

Claim 14 (Previously Amended): The composition according to Claim 1, wherein the content of polyfluorinated alcohol(s) is from 2% to 5%.

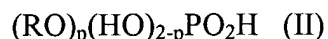
Claim 15. (Previously Amended) The composition according to Claim 1, wherein the content of the surface-active agent(s) is between 0.04 and 0.2%.

Claim 16 (Previously Amended): A water-removing dewetting composition, consisting essentially of a solution of at least one surface-active agent in a mixture of at least one fluorinated solvent and from 2% to 30% by weight of at least one water-immiscible polyfluorinated alcohol of formula:

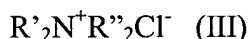


in which n is equal to 1 or 2 and R_f represents a linear or branched perfluoroalkyl radical containing from 4 to 8 carbon atoms,

wherein the surface-active agent consists of a cationic surface-active agent obtained by reaction of a mono- or dialkyl phosphoric acid of formula:



in which p is a number ranging from 1 to 2 and R denotes a linear or branched alkyl radical containing from 1 to 18 carbon atoms, with a quaternary ammonium chloride of formula:



in which R' and R'', which are identical or different, each represent a hydrogen atoms or an alkyl or hydroxyalkyl radical containing 1 to 4 carbon atoms, and a fluorinated amine of formula:



in which R_f represents a linear perfluoroalkyl radical containing from 2 to 20 carbon atoms, X represents a divalent bridge and the symbols R¹ and R², which are identical or different, each represent a hydrogen atom or an alkyl or hydroxyalkyl radical containing 1 to 4 carbon atoms;

further wherein said composition does not exhibit a flash point under standard determination conditions (ASTM standard D 3828) and wherein the fluorinated solvent is a saturated or unsaturated fluorinated hydrocarbon containing from 3 to 6 carbon atoms.

Claims 17-18 (Cancelled)